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Date _____
Pre Calculus

Evaluating Functions

If $f(x) = 6x - 3$, $g(x) = 2x^2 + x$, $h(x) = 2\sqrt{x} - 6$ find:

1. $f(3)$

$$f(3) = 6(3) - 3 = 15$$

2. $f(0)$

$$f(0) = 6(0) - 3$$

$$f(0) = -3$$

3. $g(0)$

$$g(0) = 2(0)^2 + 0$$

$$g(0) = 0$$

4. $g(4.2)$

$$g(4.2) = 2(4.2)^2 + 4.2$$

$$g(4.2) = 39.48$$

5. $h(4)$

$$h(4) = 2\sqrt{4} - 6$$

$$h(4) = -2$$

6. $h(16)$

$$h(16) = 2\sqrt{16} - 6$$

$$h(16) = 2$$

7. $f(x+4)$

$$f(x+4) = 6(x+4) - 3$$

$$f(x+4) = 6x + 24 - 3$$

$$f(x+4) = 6x + 21$$

8. $f(2x-5)$

$$f(2x-5) = 6(2x-5) - 3$$

$$f(2x-5) = 12x - 30 - 3$$

$$f(2x-5) = 12x - 33$$

9. $g(x-2)$

$$g(x-2) = 2(x-2)^2 + x - 2$$

$$2(x-2)(x-2) + x - 2$$

$$(2x-4)(x-2) + x - 2$$

$$2x^2 - 4x - 4x + 8 + x - 2$$

$$g(x-2) = 2x^2 - 7x + 6$$

10. $g(4x-1)$

$$g(4x-1) = 2(4x-1)^2 + 4x - 1$$

$$= 2(4x-1)(4x-1) + 4x - 1$$

$$(8x-2)(4x-1) + 4x - 1$$

$$32x^2 - 8x - 8x + 2 + 4x - 1$$

$$32x^2 - 12x + 1$$

11. $f(x^2+3)$

~~$$2x^2 + 3 = 6$$~~

$$f(x^2+3) = 6(x^2+3) - 3$$

$$= 6x^2 + 18 - 3$$

$$= 6x^2 + 15$$

12. $g\left(\frac{1}{2}x+4\right)$

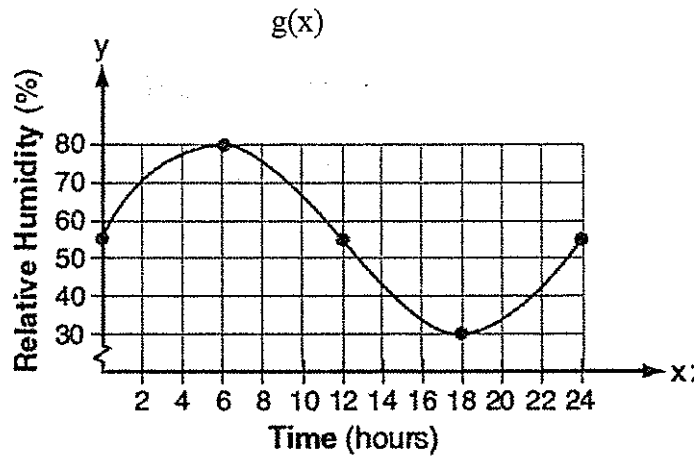
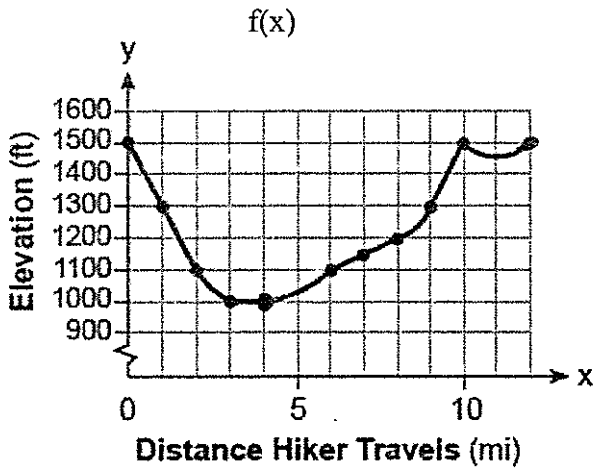
$$g\left(\frac{1}{2}x+4\right) = 2\left(\frac{1}{2}x+4\right)^2 + \frac{1}{2}x+4$$

$$= 2\left(\frac{1}{2}x+4\right)\left(\frac{1}{2}x+4\right) + \frac{1}{2}x+4$$

$$(x+8)\left(\frac{1}{2}x+4\right) + \frac{1}{2}x+4$$

$$\frac{1}{2}x^2 + 4x + 4x + 32 + \frac{1}{2}x + 4$$

$$\frac{1}{2}x^2 + 8\frac{1}{2}x + 36$$



13. Evaluate $f(4)$
 $f(4) = 1000$

14. Evaluate $f(12)$
 $f(12) = 1500$

15. Evaluate $f(1)$
 $f(1) = 1300$

16. Evaluate $g(6)$
 $g(6) = 80$

17. Evaluate $g(18)$
 $g(18) = 30$

18. Evaluate $g(24)$
 $g(24) = 55$

19. If $f(x) = \frac{1}{2}x^2 - \left(\frac{1}{4}x + 3\right)$, what is the value of $f(8)$? $f(8) = \frac{1}{2}(8)^2 - \left(\frac{1}{4}(8) + 3\right) = 27$

1) 11
 2) 17
 3) 27
 4) 33

20. If $k(x) = 2x^2 - 3\sqrt{x}$, then $k(9)$ is $k(9) = 2(9)^2 - 3\sqrt{9} = 153$

1) 315
 2) 307
 3) 159
 4) 153

21. The graph of $f(x)$ is shown below. What is the value of $f(-3)$? $= 6$

1) 6
 2) 2

3) -2
 4) -4

